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RESEARCH PAPER

Work-ability assessment in young adults with disabilities applying for disability benefits

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***Purpose*: To investigate the impact of diagnosis, co-morbidity, secondary conditions (e.g. learning problems, subclinical mental and somatic complaints, addictions, and socio-emotional and behavioral problems) and problems in social context on work ability as assessed by Insurance Physicians (IPs) in young adults applying for a disability benefit. *Method*: IPs of the Social Security Institute assessed young adults with disabilities (aged 15–27) applying for a disability benefit (n = 1755). Data were analyzed with multilevel ordinal regression techniques. *Results*: Primary diagnosis, co-morbidity and subclinical mental complaints were associated with IP-assessed work ability. Persons with mental health conditions as primary diagnosis were less likely to reach a higher work ability than persons with somatic diseases. Young adults with two or more co-morbid conditions and those with psychiatric or developmental co-morbidity were less likely to reach a higher work ability level than persons without co-morbidity. Young adults with subclinical mental complaints were half as likely to reach a higher IP-assessed work ability than young adults without this condition. *Conclusion*: Primary diagnosis, type and number of co-morbid conditions and subclinical mental complaints are associated with IP-assessed work ability. Work-ability assessments among adolescents with disabilities applying for disability benefits still focus mainly on medical factors.**

Keywords: Work ability assessment, young adults with disabilities, disability benefits

Abbreviations: SSI: Social Security Institute; IP: Insurance physician; CAS: Dutch Classification for Occupational Health and Social Insurance

Implications for Rehabilitation

- Work participation of young adults with disabilities is limited.
- Young adults with disabilities often need support to be able to function in social and economic life.
- Adequate work ability assessment of young adults with disabilities and subsequent support may help to improve their participation rates.

Introduction

Many young persons with disabilities need assistance and support to achieve a good quality of life and to be able to participate in social and economic life (e.g. work) on an equal basis with others [1–3]. The lack of necessary support services can make people with disabilities overly dependent on family members or social protection [4,5].

In the Netherlands, young people with disabilities diagnosed during childhood (before 18 years of age) can apply for a disability benefit at the Social Security Institute (SSI). Besides income support, the SSI provides access to support services to find work and if necessary support at the work place. In the Dutch system the insurance physician (IP) is responsible for assessing the work ability level during the disability claim assessment. In the literature work ability has been defined as the degree to which a person, given his health, is physically and mentally able to cope with the physical, mental, social, environmental and organisational demands at work [6,7]. In the disability assessment practice the level of work ability is determined by estimating the claimants' chances to be able to find and retain work independently, earning at least minimum wage level, and by assessing their need for assistance and support. This concept of work ability is based on Tengland's basic definition of general work ability: "an ability to perform some kind of work (given some minimal training)" [8] and defined on the WHO's International Classification of Functioning (ICF) level of

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"activities" and "participation" [9]. Furthermore, a prognosis is made by the IP of the ability to work for the period until the age of 27. This is in line with the notion that young people with disabilities frequently experience delays in psycho-social development and need more time to reach their potential than their non-disabled peers [10,11]. Moreover, the need for assistance and support varies, depending on the underlying health condition, the stage of life, the level of individual functioning and environmental factors [12]. Between leaving school and the age of 27 they may further develop their social and practical skills which might affect their work ability.

The professional basis for the physician's judgement in assessing the claimants' ability to participate in work is unclear [13]. One model that is used as underlying framework is the WHO's ICF-model [9]. The model stipulates that functioning, in our terms work-ability, encompasses mutually related components: disease and disorder, functions and structures, activities, participation, and personal and environmental factors. In recent systematic reviews on factors influencing work participation of young disabled people [14–16] several determinants from different components of the ICF model were found to influence work outcome. As health related factors severity of condition, co-morbidity, chronic health conditions combined with mental retardation and inpatient treatment were found. Gender, age, educational level, IQ, psychosocial functioning were the personal factors found. Slebus et al. have also shown that age, gender and (perceived) health influence work ability [17].

Whether the IPs use a multi-factorial approach in line with the ICF-model in the work-ability evaluation among adolescents with disabilities applying for benefits is unknown. Their main focus seems to be on medical factors. Therefore, the aim of this study was to examine which factors were associated with IP-assessed work-ability level among adolescents with disabilities applying for disability benefits.

Methods

Sampling and procedure

This cross-sectional study is part of a cohort study called 'Young Disabled at Work' investigating factors that predict work participation among young adolescents aged 15–27 year applying for a disability benefit at the Dutch Social Security Institute (SSI). This institute is responsible for all work-ability assessments under social security regulations. Participants eligible for the present study were recruited using registry data from the local SSI offices in the three northern regions in the Netherlands (Groningen, Friesland, Drenthe). Recruitment started at January 1st 2009 and ended at 31st December 2009. In the Dutch social security system, the disability benefit assessment for young persons with disabilities commonly takes place at the transition from school to work.

All twenty-one IPs employed by the SSI in the three regions participated in the study. During the claim assessment they were asked to fill out a registration form, which was developed prior to the start of the study in close collaboration between the researchers and the participating IPs. If the person was not seen by the IP, he or she was excluded, because no information about his or her disability was available. Written consent was provided by all subjects and approval was obtained from the ethics review board prior to the study.

The Medical Ethics committee of the University Medical Center Groningen, the Netherlands, approved recruitment, consent and field procedures.

Measures

Demographics (age and gender) were derived from SSI registers. Data regarding primary diagnosis, co-morbidity, secondary conditions and problems in social context were derived from the register forms filled in by the IPs. The level of work ability was the result of the complete assessment process within the SSI.

Primary diagnosis

For primary diagnosis seven mutually exclusive diagnosis groups were differentiated, based on the IP's indication of the primary diagnosis code (CAS code) responsible for the claimant's disability. This classification system (CAS) has been derived from the ICD-10 and developed for use in occupational health and social security in the Netherlands [18].

The seven groups were: (i) severe to profound mental retardation, (ii) moderate mental retardation, (iii) mild intellectual disabilities, (iv) autism spectrum disorders, (v) other developmental disorders, (vi) other psychiatric disorders, and (vii) somatic diseases.

Co-morbidity

Based on the IP's indication of the secondary diagnosis code (CAS code) four groups were constructed to define type of co-morbidity: (i) intellectual disabilities, (ii) psychiatric & developmental disorders, (iii) somatic diseases, and (iv) no co-morbidity. Besides this classification in type of co-morbidity, we also created three groups based on number of co-morbid conditions: (i) no co-morbidity, (ii) one co-morbid condition and (iii) two or more co-morbid conditions.

Secondary conditions

Secondary conditions were assessed by the following yes/no question "Does the respondent have any secondary conditions, apart from the diagnoses, that influence the work ability of the respondent?" and "If so, what kind of problems are these?" with possible response options "Learning problems/ Mental complaints (e.g. subclinical depression or anxiety)/ Somatic complaints (e.g. headaches, eczema, etc.)/Problems with addiction (drugs, alcohol)/Socio-emotional & behavioral problems (including problems regarding motivation)/ Other problems".

Problems in social context

Problems in social context were assessed by a single item (yes/no) question: "Does the respondent have any problems in his/her social context?". It was explained to the IPs that these problems could consist of problems with addiction in the family (e.g. parental alcohol abuse), financial problems, problems with delinquency, domestic violence, and similar problems.

Work ability

In accordance with the SSI assessment-outcome and with Dutch legislation on income compensation for young disabled, IP-assessed work ability was categorized as one of the four following categories: (i) able to work at minimum wage level independently (high work ability), (ii) able to work but needing support to find and retain work (moderate work ability), (iii) temporarily not able to work, e.g. due to hospitalization, but re-assessment will take place after a specified period of time (low work ability), (iv) no ability to work due to the severity of the disability (no work ability).

Statistical analyses

We first compared participants with complete data with those with incomplete data on age and gender using a t-test and a χ^2-test, respectively. Multilevel ordinal logistic regression analyses were conducted in order to examine which factors were associated with work-ability, controlling for clustering of young disabled within IPs. These analyses yield one odds ratio for the comparison of consecutive categories of the outcome variable, i.e. the same odds ratio for the comparison of work ability category 2 vs 1, as for 3 vs 2 as for 4 vs 3. We entered the nine potential predictors (diagnosis, type and number of co-morbid conditions, secondary conditions (5 conditions) and social context) to the model simultaneously in order to determine their association with IP-assessed work ability while controlling for gender and age. Because the variables 'type of co-morbidity' and 'number of co-morbid conditions' both had 'no co-morbidity' as a reference category, we performed two separate analyses; one with each co-morbidity indicator. An alpha of 0.05 was used for all statistical tests. The non-response analyses were conducted in SPSS version 18 and the multilevel ordinal logistic analyses in STATA 11.2.

Results

Description of the sample

Administrative data about gender and age was available for all disability claimants. The IP filled out a questionnaire for 99.9% of the included applicants (n = 2274). The identity of the IPs assessing the work ability was known for 97.0% of the subjects (n = 2206). Primary diagnosis was available for 98.3% of the subjects (n = 2237). We excluded 95 individuals from the analysis, because they did not have any disability according to the IP (n = 55) or because the severity of their mental retardation was unknown (n = 40). The final sample for analysis consisted of 1755 complete cases (77.1%). Incomplete cases did not differ from complete cases with regard to gender and age.

The sample consisted of 1004 men (57.2%) and 751 women (42.8%) (see Table I), with a mean age of 19.6 years (SD 2.6). Of the subjects, 84.2% (n = 1478) had abilities to work independently (high) or with support (moderate) according to the IP.

Of the total sample 42.5% had a primary diagnosis of intellectual disability, 28.2% had a developmental disorder, 16.9% had another psychiatric disorder, and 12.4% had somatic diseases. With regard to co-morbidity, 51.7% of the sample had one or more co-morbid condition(s). In addition, 21.9% of the sample had a secondary condition, of which learning problems and mental complaints were most common. Problems in social context were present for 19.0% of the respondents.

Table II provides an overview of the prevalence of co-morbidity, secondary conditions and problems in social context for each primary diagnosis group separately. Psychiatric and developmental disorders were found to be the most prevalent co-morbid condition (36.2%).

Secondary conditions were found most frequently in individuals with mental disabilities, like developmental disorders, mild intellectual disability and other psychiatric disorders. Problems in social context were assessed most frequently in individuals with psychiatric (28.0%) and other developmental disorders (27.4%).

Association of diagnosis, co-morbidity and secondary conditions with work ability

The results of the multilevel analyses are presented in Table III. Because the separate analysis with both indicators of co-morbidity (type and number) yielded similar results for the other predictors in the model, we presented the model which included type of co-morbidity and added the results of the analysis with the number of co-morbid conditions to Table III. The results indicated that primary diagnosis, type and number of co-morbid conditions, presence of mental complaints and problems in social context were statistically significantly related to the IP-assessed work ability level. Persons with severe mental retardation, moderate mental retardation, mild intellectual disability and other psychiatric conditions as the primary diagnosis were less likely to reach a higher work ability compared to persons with somatic diseases. The OR's (95% CI's) were 0.01 (0.00–0.02), 0.17 (0.10–0.30), 0.61 (0.42–0.88) and 0.25 (0.16–0.38), respectively.

Persons with two or more co-morbid conditions (OR 0.64, 95% CI: 0.46–0.88) and those with a co-morbid psychiatric or developmental disorder (OR 0.77, 95% CI: 0.60–0.97) had significantly lower odds to reach a higher level of work ability compared to persons without co-morbidity.

Persons with subclinical mental complaints were approximately half as likely to reach a higher IP-assessed work ability than respondents without this condition (OR 0.46, 95% CI: 0.28–0.75). Finally, problems in social context were statistically associated with work ability (OR 1.38, 95% CI: 1.05–1.83). The other secondary conditions were not statistically significantly related to IP-assessed level of work ability.

Discussion

The results of this study showed that insurance physicians seem to predominantly consider aspects related to the diagnosis in the work-ability assessment, i.e. primary diagnosis, type and number of co-morbid conditions and presence of mental complaints were statistically significantly related to the IP-assessed work ability level.

Table I. Characteristics of young disabled applicants.

	Total N (%)	Work ability			
		No (4) N (%)	Low (3) N (%)	Moderate (2) N (%)	High (1) N (%)
Workability	1755 (100%)	196 (11.2%)	81 (4.6%)	1210 (68.9%)	268 (15.3%)
Gender (register data SSI)					
Male	1004 (57.2%)	103 (10.3%)	37 (3.7%)	721 (71.8%)	143 (14.2%)
Female	751 (42.8%)	93 (12.4%)	44 (5.9)	489 (65.1%)	125 (16.6%)
Age (register data SSI)					
15–20 year	1293 (73.7%)	151 (11.7%)	64 (4.9%)	953 (73.7%)	125 (9.7%)
21–27 year	462 (26.3%)	45 (9.7%)	17 (3.7%)	257 (55.6%)	143 (31.0%)
Diagnosis (IP)					
Severe to profound mental retardation	35 (2.0%)	31 (88.6%)	0 (0.0%)	4 (11.4%)	0 (0.0%)
Moderate mental retardation	77 (4.4%)	22 (28.6%)	3 (3.9%)	52 (67.5%)	0 (0.0%)
Mild intellectual disability	634 (36.1%)	39 (6.2%)	20 (3.2%)	523 (82.5%)	52 (8.2%)
Autism spectrum disorders	276 (15.7%)	8 (2.9%)	5 (1.8%)	222 (80.4%)	41 (14.9%)
Other developmental disorders	219 (12.5%)	7 (3.2%)	7 (3.2%)	158 (72.1%)	47 (21.5%)
Other psychiatric disorders	296 (16.9%)	66 (22.3%)	36 (12.2%)	131 (44.3%)	63 (21.3%)
Somatic diseases	218 (12.4%)	23 (10.6%)	10 (4.6%)	120 (55.0%)	65 (29.8%)
Co-morbidity (IP)					
Co-morbidity present (yes)	908 (51.7%)	96 (10.6%)	41 (4.5%)	643 (70.8%)	128 (14.1%)
Type of co-morbidity					
Intellectual disabilities	84 (4.8%)	5 (6.0%)	4 (4.8%)	66 (78.6%)	9 (10.7%)
Psychiatric & Developmental Disorders	635 (36.2%)	63 (9.9%)	33 (5.2%)	461 (72.6%)	78 (12.3%)
Somatic diseases	189 (10.8%)	28 (14.8%)	4 (2.1%)	116 (61.4%)	41 (21.7%)
No co-morbidity	847 (48.3%)	100 (11.8%)	40 (4.7%)	567 (66.9%)	140 (16.5%)
Co-morbidity in number of conditions					
Two or more co-morbid conditions	271 (15.4%)	39 (14.4%)	13 (4.8%)	186 (68.6%)	33 (12.2%)
One co-morbid condition	637 (36.3%)	57 (8.9%)	28 (4.4%)	457 (71.7%)	95 (14.9%)
No co-morbidity	847 (48.3%)	100 (11.8%)	40 (4.7%)	567 (66.9%)	140 (16.5%)
Secondary conditions (IP)					
Secondary conditions, like*	385 (21.9%)	31 (8.1%)	25 (6.5%)	277 (71.9%)	52 (13.5%)
Learning problems	75 (19.5%)	6 (8.0%)	1 (1.3%)	57 (76.0%)	11 (14.7%)
Mental complaints	79 (20.5%)	9 (11.4%)	6 (7.6%)	58 (73.4%)	6 (7.6%)
Somatic complaints	58 (15.1%)	8 (13.8%)	3 (5.2%)	45 (77.6%)	2 (3.4%)
Problems with addiction (drugs, alcohol)	65 (16.9%)	5 (7.7%)	10 (15.4%)	40 (61.5%)	10 (15.4%)
Socio-emotional & behavioral problems	64 (16.6%)	2 (3.1%)	3 (4.7%)	48 (75.0%)	11 (17.2%)
Other problems	44 (11.4%)	1 (2.3%)	2 (4.5%)	29 (65.9%)	12 (27.3%)
No secondary conditions	1370 (78.1%)	165 (12.0%)	56 (4.1%)	933 (68.1%)	216 (15.8%)
Problems in social context (IP)	333 (19.0%)	25 (7.5%)	13 (3.9%)	239 (71.8%)	56 (16.8%)

*Categories are not exclusive.

Young adults with intellectual disabilities or psychiatric disorders, young adults with two or more co-morbid conditions and young adults with subclinical mental complaints were less likely to reach a higher level of IP-assessed work ability.

In our study, we found that both the number of co-morbid conditions as well as the type of co-morbid condition significantly influenced work ability. Other studies confirmed the negative impact of presence of co-morbidity on work outcome [19–22]. Although in our study the presence of one co-morbid condition failed to reach significance, the trend is showing decreased odds on higher work ability.

The results of this study show that intellectual and psychiatric disabilities as primary diagnosis are associated with a lower level of IP-assessed work ability compared to somatic diseases. Also, the prevalence of co-morbidity, secondary conditions and problems in social context was higher in this group compared to somatic diseases. This is indicative of the vulnerability of this specific mental disorders group. The finding that the ability to participate in work of people with mental disorders is low, has been confirmed by other studies [23,24]. Randolph [25] reported that only 32% of people with intellectual disabilities and 33% of people with mental health conditions are employed. In young adults with congenital heart disease, for example, this percentage was 64% [26] and in COPD 52% [27].

Secondary conditions were not often reported by the IPs, which could mean these were not taken into account in the assessment of work-ability and might also point to the lack of awareness of IPs of the influence of these conditions on work

Table II. Prevalence of co-morbidity and secondary conditions per diagnosis group.

Diagnosis	Severe to profound mental retardation N (%)	Moderate mental retardation N (%)	Mild intellectual disabilities N (%)	Autism spectrum disorders N (%)	Other developmental disorders N (%)	Other psychiatric disorders N (%)	Somatic diseases N (%)	Total N (%)
Total	35	77	634	276	219	296	218	1755
Co-morbidity								
Intellectual disabilities	0 (0.0%)	0 (0.0%)	0 (0.0%)	41 (14.9%)	19 (8.7%)	7 (2.4%)	17 (7.8%)	84 (4.8)
Psychiatric & Developmental Disorders	8 (22.9%)	20 (26.0%)	234 (36.9%)	108 (39.1%)	116 (53.0%)	126 (42.6%)	23 (10.6%)	635 (36.2%)
Somatic diseases	10 (28.6%)	12 (15.6%)	64 (10.1%)	19 (6.9%)	20 (9.1%)	14 (4.7%)	50 (22.9%)	189 (10.8%)
No co-morbidity	17 (48.6%)	45 (58.4%)	336 (53.0%)	108 (39.1%)	64 (29.2%)	149 (50.3%)	128 (58.7%)	847 (48.3%)
Secondary conditions								
Secondary conditions present	5 (14.3%)	7 (9.1%)	150 (23.7%)	60 (21.7%)	66 (30.1%)	60 (20.3%)	37 (16.9%)	385 (21.9%)
Learning problems	0 (0.0%)	1 (1.3%)	32 (5.0%)	9 (3.3%)	15 (6.8%)	5 (1.7%)	13 (6.0%)	75 (4.3%)
Mental complaints	2 (5.7%)	3 (3.9%)	20 (3.2%)	25 (9.1%)	14 (6.4%)	9 (3.0%)	6 (2.8%)	79 (4.5%)
Somatic complaints	2 (5.7%)	2 (2.6%)	25 (3.9%0	8 (2.9%)	4 (1.8%)	7 (2.4%)	10 (4.6%)	58 (3.3%)
Problems with addiction	0 (0.0%)	0 (0.0%)	19 (3.0%)	9 (3.3%)	18 (8.2%)	19 (6.4%)	0 (0.0%)	65 (3.7%)
Socio-emotional & behavioral problems	1 (2.9%)	1 (1.3%)	32 (5.0%)	4 (1.4%)	10 (4.6%)	8 (2.7%)	8 (3.7%)	64 (3.6%)
Other problems	1 (2.9%)	1 (1.3%)	66 (10.4%)	16 (5.8%)	26 (11.9%)	24 (8.1%)	14 (6.4%)	148 (8.4%)
Problems in social context	0 (0.0%)	5 (6.5%)	129 (20.3%)	45 (16.3%)	60 (27.4%)	83 (28.0%)	11 (5.0%)	333 (19.0%)

Table III. Results multivariate multilevel analysis of prognostic factors and IP-assessed work ability.

	15–27 years of age					
				CI 95%		
Multivariate analysis (n = 1755)	Estimate	SE	OR	lower	upper	*p*
Gender (male)	−0.042	0.112	0.96	0.77	1.19	0.704
Age						
[1] 15–20 years	−1.055	0.135	0.35	0.27	0.45	0.000
[2] 21–27 years						
Diagnosis						
[1] Severe to profound mental retardation	−4.836	0.570	0.01	0.00	0.02	0.000
[2] Moderate mental retardation	−1.769	0.290	0.17	0.10	0.30	0.000
[3] Mild intellectual disability	−0.501	0.189	0.61	0.42	0.88	0.008
[4] Autism spectrum disorders	−0.025	0.209	0.98	0.65	1.47	0.906
[5] Other developmental disorders	0.121	0.221	1.13	0.73	1.74	0.585
[6] Other psychiatric disorders	−1.384	0.215	0.25	0.16	0.38	0.000
[7] Somatic diseases (ref)						
Type of co-morbidity						
[1] Intellectual disabilities	−0.441	0.267	0.64	0.38	1.09	0.099
[2] Psychiatric & developmental disorders	−0.267	0.122	0.77	0.60	0.97	0.029
[3] Somatic diseases	0.154	0.183	1.17	0.81	1.67	0.401
[4] No co-morbidity (ref)						
Number of co-morbid conditions*						
[1] Two or more co-morbid conditions	−0.447	0.164	0.64	0.46	0.88	0.006
[2] One co-morbid condition	−0.092	0.119	0.91	0.72	1.15	0.440
[3] No co-morbidity (ref)						
Secondary conditions						
Learning problems (yes)	0.238	0.263	1.27	0.76	2.12	0.366
Mental complaints (yes)	−0.787	0.255	0.46	0.28	0.75	0.002
Somatic complaints (yes)	−0.380	0.293	0.68	0.39	1.22	0.195
Problems with addiction (drugs, alcohol) (yes)	−0.363	0.277	0.70	0.40	1.20	0.190
Socio-emotional and behavioral problems (yes)	0.460	0.283	1.58	0.91	2.76	0.104
Problems in social context (yes)	0.326	0.143	1.38	1.05	1.83	0.023

*We analyzed one model with type of co-morbidity and another with number of co-morbid conditions. As the results for the other variables remained similar, we presented the model with type of co-morbidity and added the number of co-morbid conditions. OR = odds to fall in a higher outcome category of assessed work ability compared to the reference category of the predictor.

ability. Problems in social context were assessed in almost one in five cases. Although in our study it was significantly associated with the IP-assessed work ability level, the direction of the effect is counterintuitive. Literature suggests functioning of young adults with disabilities can be considerably hampered by problems in social context, such as domestic violence [28,29]. It seems unlikely that IPs would assess problems in social context as a facilitating factor for work ability. However, individuals with problems in social context may have developed a certain resilience and drive that causes the IP to think that these individuals are well able to find their way in entering the labour market. Our reverse finding might also be caused by the amount of missing data, resulting in selection bias, although other effects we found were in the expected direction. Another explanation could be that it was caused by a type I error, which might be plausible given the amount of factors tested in our model.

Any personal (secondary conditions) or environmental barriers individuals may have to enter the labour market may be considered irrelevant by the IP's, and therefore, unimportant. In a study of Slebus et al similar results were found; both personal and environmental factors were not often mentioned by IPs as taken into account in the work-ability evaluation of long-term sick listed workers applying for a disability benefit [13]. It can be argued that these factors should be incorporated in work-ability assessment more often, while it is known from literature that these factors influence work outcome among young people with disabilities. Several authors mentioned that learning problems are regularly occurring in individuals with developmental disabilities and mental retardation [15,30,31]. Adolescents with mental disorders and developmental disabilities are attributed a higher risk of emotional and behavioral problems [32–34] and substance abuse [35,36] compared with their healthy peers. Moreover, it was found that individuals with learning impairments, emotional and behavioral problems or substance abuse experience significant higher unemployment rates than the general population [37–39].

Because it is known that disease-related factors are weak indicators of work-ability [17] IPs should investigate personal and external factors as well, in line with the ICF-model, to ensure that those factors will not hinder work-ability. The low prevalences and weak relationships with workability of these non-disease related factors (secondary and environmental) found in our study suggest that IPs do not take into account these important factors in a structured way. An explanation might be the information sources the IPs rely on during their assessment. For the certification of diagnosis as reason for disability, insurance physicians mostly rely on the diagnosis of other professionals in the health care sector, i.e. general practitioners, medical specialists and occupational physicians. For additional information, such as secondary and environmental conditions, the IPs rely on information from the claimant. In the group of young people with disabilities, information from school and from parents is available as well. Self-report from persons with disabilities, especially with mental disorders, has sometimes been found to be inappropriate because of denial of illness or lack of insight on the part of the young adults [40]. Moreover, in a previous study by Oeseburg et al. (2010) it was shown that knowledge of teachers regarding prevalence of co-morbidity and secondary conditions in their pupils is also restricted [41].

Implications

Limited recognition of co-morbidity and conditions unrelated to primary diagnosis (such as secondary conditions and problems in social context) may translate into suboptimal assessment of the work ability level by insurance physicians, and may subsequently limit access to support services to find work and if necessary support at the work place. As a result the chances of successful and sustainable work participation may be (severely) limited. Therefore, it is important for IPs to take these factors into account when assessing work-ability.

Although the work disability assessment itself will differ across different countries, we assume that the medical point of view, that dominated the disability assessment until recently, will also affect assessments in other countries. It is a challenge for medical doctors as well as other professionals to incorporate non disease related aspects into their assessment of their clients. Moreover, the results of our study are also applicable to vocational rehabilitation professionals, who support individuals in finding work. Not taking into account non disease-related factors may severely limit the possible work outcome.

Strengths and limitations of the study

Our study is the first to assess the extent to which IPs take into account co-morbidity, secondary conditions and problems in social context of young adults applying for a disability benefit, in addition to primary diagnosis. The strengths of this study are the representativeness of the sample for the population of young disability claimants in the Netherlands, the use of data reported by the IPs and the size of our cohort, allowing assessment of work ability per diagnosis group.

However, some limitations must be taken into account as well. First, a potential limitation is the amount of missing data resulting in analyses of 76.8% of the available cases. This may have led to a slightly different distribution of the primary diagnosis in our cohort. Compared with the data of the Social Security Institute, the prevalence of mild intellectual disability in our cohort is slightly higher than reported by the SSI (35.2% vs 29%) and the prevalence of other psychiatric disorders in our cohort is somewhat lower than reported by the SSI (17.3% vs 21%) [42]. However, it is not expected that a slightly different distribution of diagnosis will have significantly altered our findings regarding the associations with workability.

Second, the cross-sectional design of this study prohibits any inference of causality. There is an apparent need for longitudinal studies linking these prognostic factors to work outcome as well as determining the ability of IP-assessed work ability level to predict subsequent work participation adequately. Thirdly, the registration of non-disease related factors may have been limited by our operationalization of these factors in our study. IPs were asked to indicate other problems influencing the work ability of the respondent and problems in social context on the registration form and this

might have led to an underreporting of non-disease related factors.

Conclusion

Based on these results it is concluded that in work-ability assessments among adolescents with disabilities applying for disability benefits the main focus is still on medical factors (diagnoses, comorbidity and subclinical mental complaints). Although problems in social context were frequently reported and statistically significantly related to the IP-assessed work ability level, it is dubious whether IPs really take the impact of these problems on the work ability level into account given the counterintuitive direction of the effect.

In line with previous research that showed that non-disease related factors (secondary conditions and environmental factors) are strongly related to the level of work-ability, it can be argued that these non-disease related factors should be incorporated in work-ability assessment more often, while it is known from literature that these factors influence work outcome among young people with disabilities. Moreover, while the assessment of the work ability level is an important part of the evaluation for the work disability benefit and has considerable individual, financial and social consequences, it is suggested that IPs should be trained to take these factors into account in the work-ability evaluation of these claimants.

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